

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Claims 1-12 are pending in the application, with Claims 1 and 12 being independent claims. As indicated above, in order to more clearly disclose the features of the present Application, Claims 1, 4, 5 and 12 are amended.

In the Office Action, Claims 1 and 4-12 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Applicant's Admitted Prior Art (AAPA)* in view of *Uesugi et al.* (US 2002/0114379), Claim 2 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *AAPA* in view of *Uesugi* and further in view of *Matsumoto et al.* (US 2002/0136207), and Claim 3 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *AAPA* in view of *Uesugi* and further in view of *Lassen et al.* (US 2002/0087685). Additionally, Claims 1-11 are rejected under 35 U.S.C. §112, second paragraph.

Regarding the rejection under 35 U.S.C. §112, second paragraph, the Examiner rejects Claims 1-11 as allegedly being indefinite. Specifically, the Examiner alleges that the Claim 1 is indefinite for reciting that the channel decoder, which the Examiner asserts is written as a means clause, in addition to decoding the data stored in the slot buffer, also is for “analyzing modulation methods for each sub-channels”, as the Examiner alleges that the Specification does not provide a description of the structure used to perform this function, as required by 35 U.S.C. §112, sixth paragraph. However, Applicants respectfully disagree.

First, the recitation of “a channel decoder” should not be analyzed as a means plus function recitation, as a channel decoder is a sufficient structure for performing the recited functions and the claims make no recitation of “means for”. The Examiner’s attention is

directed to MPEP § 2181. Further, “analyzing modulation methods for each sub-channels” is clearly supported by paragraphs [58]-[60] of the current Application.

Accordingly, based on the foregoing, it is respectfully requested that the rejection is improper and should be withdrawn.

As indicated above, independent Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over *AAPA* in view of *Uesugi*. Specifically, in rejecting Claim 1, the Examiner asserts that *AAPA* teaches all the recitations of the claims, except for “demapping process to the received signals by a modulation method using a maximum modulation ratio, and outputting data, until modulation methods for each sub-channels are analyzed”, which are allegedly taught in *Uesugi*. However, Applicants respectfully disagree.

Claim 1 recites a demodulation apparatus for receiving signals by an adaptive modulation and coding method, and demodulating the signals, in an OFDMA based packet communication system, comprising:

- a QAM demapper for performing a QAM (Quadrature Amplitude Modulation) demapping process on the received signals by a modulation method using a maximum modulation ratio, and outputting data, until modulation methods for each of the sub-channels are analyzed;

- a slot buffer for storing the data outputted from the QAM demapper for each slot; and

- a channel decoder for decoding the data stored in the slot buffer, for analyzing modulation methods for each of the sub-channels and transferring the analyzed modulation methods to the QAM demapper, and for reading valid data from the data stored in the slot buffer, based on the analyzed modulation methods for each of the sub-channels and demodulating the valid data, and outputting the demodulated data.

More specifically, the Examiner alleges that *Uesugi* discloses “demapping process

to the received signals by a modulation method using a maximum modulation ratio, and outputting data, until modulation methods for each sub-channels are analyzed”, as recited in Claim 1, citing, *inter alia*, paragraphs [0094], [0095], [0060]-[0067] and [0068]-[0074] of *Uesugi*.

However, upon review of the cited sections of *Uesugi*, it is respectfully submitted that there is no portion of this citation, or any other section of *Uesugi*, which teaches these recitations of Claim 1. *Uesugi* merely discloses that the receiving-side apparatus demodulates all transmitted data without knowing (being aware at all) a modulation scheme of the transmitting-side apparatus, but does not disclose the recitations of Claim 1.

Further, the Examiner alleges that *AAPA* discloses “a slot buffer for storing the data outputted from the QAM demapper for each slot”, as recited in Claim 1, citing, *inter alia*, Fig. 2 and paragraph [0010] of the current Application.

However, based upon the above argument regarding the QAM demapper, it is also believed that the interpretation asserted by the Examiner is not supported by the disclosure of *Walton*. Furthermore, it is respectfully submitted that there is no portion of the citations of *Walton*, or any other section of *Walton*, which teaches this recitation of Claim 1.

Further, the Examiner alleges that *AAPA* discloses “a channel decoder for decoding the data stored in the slot buffer, for analyzing modulation methods for each of the sub-channels and transferring the analyzed modulation methods to the QAM demapper, and for reading valid data from the data stored in the slot buffer, based on the analyzed modulation methods for each of the sub-channels and demodulating the valid data, and outputting the demodulated data”, as recited in Claim 1, citing, *inter alia*, Fig. 2 and paragraphs [0010], [0011] and [0013] of the current Application.

However, based upon the arguments above regarding the QAM demapper or the slot buffer, it is also believed that the interpretation asserted by the Examiner is not

supported by the disclosure of *Walton*. Furthermore, it is respectfully submitted that there is no portion of the citations of *Walton*, or any other section of *Walton*, which teaches this recitation of Claim 1.

More specifically, upon review of the cited paragraph [0010] of *AAPA*, it is respectfully submitted that there is no portion of this citation, or any other section of *AAPA*, which teaches these recitations of Claim 1. For ease of comparison, paragraph [0010] of *AAPA* reads as follows:

[0010] As referred to in FIG. 2, the received OFDMA packet is transformed in a Fast Fourier Transform (FFT) device by an FFT method. A channel for the packet is estimated and is equalized in an equalizer 23 through a re-ordering buffer 22, and it is QAM demapped in a QAM (Quadrature Amplitude Modulation) demapper 25. It is then channel decoded in a channel decoder 27 through a slot buffer 26, and it is finally demodulated.

As can be seen above, *AAPA* does not disclose “reading valid data from the data stored in the slot buffer, based on the analyzed modulation methods for each sub channels and demodulating the valid data, and outputting the demodulated data,” as recited in Claim 1.

Therefore, it is respectfully submitted that the interpretation asserted by the Examiner is not supported by the disclosure of *AAPA*, and the independent Claim 1 is patentably distinct over *AAPA* in view of *Uesugi*. Accordingly, it is respectfully requested that the rejection of independent Claim 1 be withdrawn.

Additionally, in order to further distinguish Claim 1 from the Examiner’s cited art, as indicated above, this claim has been amended to more clearly recite “a QAM demapper for performing a QAM (Quadrature Amplitude Modulation) demapping process on the

received signals by a modulation method using a maximum modulation ratio, and outputting first data which have a number of bits corresponding the modulation method using the maximum modulation ratio ; until modulation methods for each of the sub-channels are analyzed, and performing the QAM demapping process on the received signals by the modulation methods for each of the sub-channels and outputting second data which have a number of bits corresponding to the modulation methods for each of the sub-channels, when the modulation methods for each of the sub-channels are analyzed”, as recited in amended Claim 1.

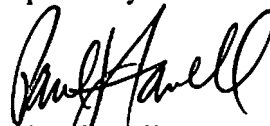
Amended Claim 12 recites similar features as those discussed above regarding amended independent Claim 1. Therefore, for the same reasoning argued above for amended Claim 1, it is also respectfully requested that the rejection of independent Claim 12 be withdrawn.

Accordingly, it is respectfully submitted that amended independent Claims 1 and 12 are in condition for allowance.

Without conceding the patentability *per se* of dependent Claims 2-11 each depend either directly or indirectly from independent amended Claim 1, and are also believed to be patentable for at least the same reasons as set forth above for amended independent Claim 1.

Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul J. Farrell", written in a cursive style.

Paul J. Farrell
Reg. No. 33,494
Attorney for Applicants

THE FARRELL LAW FIRM, LLP
290 Broadhollow Road, Suite 210E
Melville, New York 11747
Tel: (516) 228-3565
Fax: (516) 228-8475